

REMARKS

Claims 1-20, 54-60 and Claims 67-69 are pending. Claims 1, 68 and 69 have been amended herein. Claims 21-53, and Claims 61-66 have been cancelled herein. Claim 1, 68 and 69 as amended, are fully supported in the detailed description. No new matter has been added to the specification.

Election

Applicants elect without traverse Group I, recited in Claims 1-20, 54-60, and 67-69 drawn to an electrode structure classified in class 313, subclass 495.

Priority

The Examiner has stated that the priority document submitted with the Applicants application is not considered for failure of identical filing date, identical title and identical inventorship with the application. Per the telephone conversation of January 3, 2002, the Applicants respectfully request Examiner not to further consider the priority document.

112 Rejection

Claims 68 and 69 are rejected under 35 U.S.C. §112 for being indefinite. Claims 68 and 69 have been amended to correct any problems with indefiniteness and antecedence as discussed by the Examiner. Therefore, Applicants respectfully submit that Claim 69 is now in condition for allowance as being dependent on allowable base Claim 67.

102 Rejection

Claims 1-3 and 20 are rejected under 35 U.S.C. §102(b) as being anticipated by Shen et al. (US 5,594,297). Applicants have reviewed the cited reference and respectfully submit that the present invention as recited in Claims 1-3 and 20 is neither shown nor suggested by Shen et al.

The Examiner is respectfully directed to independent Claim 1 which recites that an embodiment of the present invention is directed to an electrode structure for a display device comprising:

a plurality of first electrodes disposed over a backplate, said plurality of first electrodes further comprising a metal alloy; a dielectric layer disposed over said plurality of first electrodes; and a plurality of second electrodes, said plurality of second electrodes disposed over said dielectric layer, said plurality of second electrodes further comprising said metal alloy, wherein said plurality of first electrodes further comprise a cladding layer disposed over said metal alloy.

Claims 2-3 and 20 depend from independent Claim 1 and recite further features of the present invention.

Shen et al. does not anticipate or render obvious an electrode structure for a display device “wherein said plurality of first electrodes further comprise a cladding layer disposed over said metal alloy” as recited in independent Claim 1 as amended. Shen et al. only discloses a conductor 20 that comprises three sublayers and clearly does not show or suggest an electrode structure that includes a cladding layer disposed over a metal alloy.

Therefore, Applicants respectfully submit that Shen et al. does not anticipate nor suggest the present claimed invention as recited in Claim 1 and, as such, Claim 1 traverses the Examiner's basis for rejection under 35 U.S.C. §102(b). Accordingly, Applicants respectfully submit that Claim 1 is in condition for allowance. In addition, Applicants respectfully submit that Shen et al. does not anticipate nor suggest the present invention as is recited in Claims 2-3 and 20 which depend from Claim 1, and that Claims 2-3 and 20 are also in condition for allowance as being dependent on an allowable base claim.

#### 103 Rejections

Claim 4-8 are rejected under 35 U.S.C. §103(a) as being unpatentable over Shen et al. (US 5,594,297) in view of Kamiya et al. (US 6,320,138). Applicants have reviewed the cited references and respectfully submit that the present invention as recited in Claims 4-8 is neither anticipated or rendered obvious by Shen et al., alone or in combination with Kamiya et al.

The Examiner is respectfully directed to independent Claim 1 which recites that an embodiment of the present invention is directed to an electrode structure for a display device comprising:

a plurality of first electrodes disposed over a backplate, said plurality of first electrodes further comprising a metal alloy; a dielectric layer disposed over said plurality of first electrodes; and a plurality of second electrodes, said plurality of second electrodes disposed over said dielectric layer, said plurality of second electrodes further comprising said metal alloy, wherein said plurality of first electrodes further comprise a cladding layer disposed over said metal alloy.

Claims 4-8 depend from Claim 1 and recite further features of the present invention.

Shen et al. does not anticipate or render obvious an electrode structure for a display device "wherein said plurality of first electrodes further comprise a cladding layer disposed over said metal alloy" as recited in independent Claim 1 as amended. Shen et al. only discloses a conductor 20 that comprises three sublayers and clearly does not show or suggest a electrode structure that includes a cladding layer disposed over a metal alloy.

Kamiya et al. does not overcome the shortcomings of Shen et al. Kamiya only shows a conductor formed of an aluminum alloy. Kamiya et al., alone or in combination with Shen et al., does not anticipate or render obvious an electrode structure for a display device "wherein said plurality of first electrodes further comprise a cladding layer disposed over said metal alloy" as is recited in independent Claim 1. Shen et al. and Kamiya et al., alone or in combination, clearly do not show or suggest having a cladding layer disposed over a plurality of first electrodes formed of a metal alloy as in the present claimed invention.

Therefore, Applicants respectfully submit that Shen et al. and Kamiya et al., alone or in combination, do not anticipate or render obvious the present claimed invention as recited in independent Claim 1 and that Claim 1 is thus in condition for allowance. Accordingly, Applicants also respectfully submit that Shen et al. and Kamiya et al., alone

or in combination, do not anticipate or render obvious the present claimed invention as recited in Claims 4-8 dependent on Claim 1, and that Claims 4-8 traverse the Examiner's basis for rejection under 35 U.S.C. §103(a) as being based on an allowable base claim.

Claim 10 is rejected under 35 U.S.C. §103(a) as being unpatentable over Shen et al. (US 5,594,297) in view of Chakvorty et al. (US 5,894,188).

The Applicants have reviewed these references and respectfully submit that the present invention as recited in Claim 10 is not anticipated nor rendered obvious by Shen et al. alone or in combination with Chakvorty et al.

The Examiner is respectfully directed to independent Claim 1 which recites that an embodiment of the present invention is directed to an electrode structure for a display device comprising:

a plurality of first electrodes disposed over a backplate,  
said plurality of first electrodes further comprising a  
metal alloy; a dielectric layer disposed over said plurality  
of first electrodes; and a plurality of second electrodes,  
said plurality of second electrodes disposed over said dielectric  
layer, said plurality of second electrodes further comprising  
said metal alloy, wherein said plurality of first electrodes  
further comprise a cladding layer disposed over said metal alloy.

Claim 10 is dependent on independent Claim 1 and recites further features of the present invention.

Shen et al. does not anticipate or render obvious an electrode structure for a display device "wherein said plurality of first electrodes further comprise a cladding layer disposed over said metal alloy" as recited in independent Claim 1 as amended. Shen et al.

only discloses a conductor 20 that comprises three sublayers and clearly does not show or suggest a electrode structure that includes a cladding layer disposed over a metal alloy.

Chakvorty et al. does not overcome the shortcomings of Shen et al. Chakvorty et al. teaches the use of tantalum as a cladding material to prevent "significant interdiffusion of the aluminum and tantalum" at column 8, lines 7-9. However, Shen et al. discloses that conductor 20, comprises three sublayers and that "Sublayer 20a, which may comprise titanium tungsten (TiW), is selected for its qualities as barrier and adhesion. Sublayer 20b, which may comprise aluminum, is selected for its qualities as a conductor. Sublayer 20c, which may comprise TiW, is selected for its qualities as a barrier" at column 4, lines 13-18. As seen in the foregoing passage, Shen et al. teaches a conductor structure that employs sublayers 20a and 20c as barrier layers. Because these layers themselves function as barriers to interdiffusion, it would not be logical to utilize a cladding layer in such a context. Thus, the Shen et al. and Chakvorty et al. references take contradictory paths and reach different solutions to the problem of interdiffusion. Consequently, because the conceptually contradictory references teach away from each other, they cannot be combined. As such, Chakvorty et al., alone or in combination with Shen et al., does not anticipate or render obvious an electrode structure for a display device "wherein said plurality of first electrodes further comprise a cladding layer disposed over said metal alloy" as is recited in independent Claim 1. Shen et al. and Chakvorty et al., alone or in combination, clearly do not show or suggest having a cladding layer disposed over a plurality of first electrodes formed of a metal alloy as in the present claimed invention.

Therefore, Applicants respectfully submit that Shen et al. and Chakvorty et al., alone or in combination, do not anticipate or render obvious the present claimed invention as recited in independent Claim 1 and that Claim 1 is thus in condition for allowance. Accordingly, Applicants also respectfully submit that Shen et al. and Chakvorty et al., alone or in combination, do not anticipate or render obvious the present claimed invention as recited in Claim 10 dependent on Claim 1, and that Claim 10 traverses the Examiner's basis for rejection under 35 U.S.C. §103(a) as being dependent on an allowable base claim.

Claims 11-17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Shen et al. (US 5,594,297) and further in view of Kuroda et al. (US 6,265,822). Applicants have reviewed the cited references and respectfully submit that the present invention as recited in Claims 11-17 is neither anticipated or rendered obvious by Shen et al., alone or in combination with Kuroda.

The Examiner is respectfully directed to independent Claim 1 which recites that an embodiment of the present invention is directed to an electrode structure for a display device comprising:

a plurality of first electrodes disposed over a backplate, said plurality of first electrodes further comprising a metal alloy; a dielectric layer disposed over said plurality of first electrodes; and a plurality of second electrodes, said plurality of second electrodes disposed over said dielectric layer, said plurality of second electrodes further comprising said metal alloy, wherein said plurality of first electrodes further comprise a cladding layer disposed over said metal alloy.

Claims 11-17 depend from Claim 1 and recite further features of the present invention.

Shen et al. does not anticipate or render obvious an electrode structure for a display device "wherein said plurality of first electrodes further comprise a cladding layer disposed over said metal alloy" as recited in independent Claim 1 as amended. Shen et al. only discloses a conductor 20 that comprises three sublayers and clearly does not show or suggest a electrode structure that includes a cladding layer disposed over a metal alloy.

Kuroda et al. does not overcome the shortcomings of Shen et al. Kuroda et al. only shows an electron beam apparatus. Kuroda et al., alone or in combination with Shen et al., does not anticipate or render obvious an electrode structure for a display device "wherein said plurality of first electrodes further comprise a cladding layer disposed over said metal alloy" as is recited in independent Claim 1. Shen et al. and Kuroda et al., alone or in combination, clearly do not show or suggest having a cladding layer disposed over a plurality of first electrodes formed of a metal alloy as in the present claimed invention.

Therefore, Applicants respectfully submit that Shen et al. and Kuroda et al., alone or in combination, do not anticipate or render obvious the present claimed invention as recited in independent Claim 1 and that Claim 1 is thus in condition for allowance. Accordingly, Applicants also respectfully submit that Shen et al., alone or in combination with Kuroda et al., do not anticipate or render obvious the present claimed invention as recited in Claims 11-17 dependent on Claim 1, and that Claims 11-17 traverse the

Examiner's basis for rejection under 35 U.S.C. §103(a) as being dependent on an allowable base claim.

Claims 18, 19, 54, and 55 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 5,594,297 to Shen et al. in view of U.S. Patent 6,064,149 to Raina. Applicants have reviewed the cited references and respectfully submit that the present invention as recited in Claims 18, 19, 54, and 55 is neither anticipated or rendered obvious by Shen et al., alone or in combination with Raina.

The Examiner is respectfully directed to independent Claim 54 which recites that an embodiment of the present invention is directed to an electrode structure for a display device comprising:

a plurality of first electrodes; a resistor layer disposed over said plurality of first electrodes; a dielectric layer disposed over said resistor layer; a plurality of second electrodes disposed over said dielectric layer; and a passivation layer disposed over said plurality of second electrodes.

Claim 55 is dependent on independent Claim 54 and recites further features of the present invention.

Shen et al. does not anticipate or render obvious an electrode structure for a display device having "a passivation layer disposed over said plurality of second electrodes" as recited in independent claim 54. Shen et al. only discloses a conductor 60 that overlies insulating layer 70 and forms a gate bonding pad 80 and clearly does not show or suggest an electrode structure that includes a passivation layer disposed over it.

Raina does not overcome the shortcomings of Shen et al. Raina teaches at column 8, lines 38-40, that a passivation layer 56 which may be formed of silicon nitride may "be formed over gate metal layer 52." Shen et al. teaches at column 4, lines 1-3, that a surface of conductive layer 60 "forms a gate bonding pad 80 for accepting bond wires to thereby facilitate electrical connection with external circuitry." It should be appreciated that the formation of a passivation layer on the surface of the conductive layer 60 of Shen et al. not only would not facilitate electrical connection to external circuitry but could in fact impede such connection. Because the imposition of a passivation layer could negatively affect the normal operation of the device, it would not have been logical to utilize such material on the conductive layer of the Shen et al. device. Consequently, because the references teach away from each other, they cannot be combined. As such, Raina et al., alone or in combination with Shen et al., does not anticipate or render obvious an electrode structure for a display device "and a passivation layer disposed over said plurality of second electrodes" as is recited in independent Claim 54. Shen et al. and Raina, alone or in combination, clearly do not show or suggest having a passivation layer disposed over a plurality of second electrodes as in the present claimed invention.

Therefore, Applicants respectfully submit that Shen et al. and Raina alone or in combination, do not anticipate or render obvious the present claimed invention as recited in independent Claim 54 and that Claim 54 is thus in condition for allowance. Accordingly, Applicants also respectfully submit that Shen et al. and Raina, alone or in combination, do not anticipate or render obvious the present claimed invention as recited in Claim 55 dependent on Claim 54, and that Claim 55 traverses the Examiner's

basis for rejection under 35 U.S.C. §103(a) as being dependent on an allowable base claim.

Claims 18 and 19 depend from Claim 1 and recite further features of the present invention.

Shen et al. does not anticipate or render obvious an electrode structure for a display device “wherein said plurality of first electrodes further comprise a cladding layer disposed over said metal alloy” as recited in independent Claim 1 as amended. Shen et al. only discloses a conductor 20 that comprises three sublayers and clearly does not show or suggest a electrode structure that includes a cladding layer disposed over a metal alloy.

Raina does not overcome the shortcomings of Shen et al. Raina only shows a passivation layer of silicon nitride formed over a gate metal later. Raina, alone or in combination with Shen et al., does not anticipate or render obvious an electrode structure for a display device “wherein said plurality of first electrodes further comprise a cladding layer disposed over said metal alloy” as is recited in independent Claim 1. Shen et al. and Raina, alone or in combination, clearly do not show or suggest having a cladding layer disposed over a plurality of first electrodes formed of a metal alloy as in the present claimed invention.

Therefore, Applicants respectfully submit that Shen et al. and Raina, alone or in combination, do not anticipate or render obvious the present claimed invention as recited in independent Claim 1 and that Claim 1 is thus in condition for allowance. Accordingly,

Applicants also respectfully submit that Shen et al. and Raina, alone or in combination, do not anticipate or render obvious the present claimed invention as recited in Claims 18 and 19 dependent on Claim 1, and that Claims 18 and 19 traverse the Examiner's basis for rejection under 35 U.S.C. §103(a) as being based on an allowable base claim.

Claims 56-58, 60, 67 and 68 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Shen et al. (U.S. Patent 5,594,297) in view of Raina (U.S. Patent 6,064,149) and further in view of Amey (WO 98/43268). The Applicants have reviewed these references and respectfully submit that the present invention as recited in Claims 56-58, 60, 67, and 68 is not anticipated nor rendered obvious by Shen et al. alone or in combination with Rainey and Amey.

The Examiner is respectfully directed to independent Claim 67 which recites that an embodiment of the present invention is directed to an electrode structure for a display device comprising:

a plurality of first electrodes; a resistor layer disposed over said plurality of first electrodes; a first dielectric layer disposed over said resistor layer; a plurality of second electrodes disposed over said dielectric layer; and a second dielectric layer disposed over said plurality of second electrodes.

Claims 68 is dependent on independent Claim 67 and recites further features of the present invention.

Shen et al. does not anticipate or render obvious an electrode structure for a display device having "a dielectric layer disposed over said plurality of second electrodes" as recited in independent Claim 67. Shen et al. only discloses a conductor 60

that overlies insulating layer 70 and forms a gate bonding pad 80 and clearly does not show or suggest an electrode structure that includes a passivation layer disposed over it.

Raina and Amey do not overcome the shortcomings of Shen et al. Raina teaches a passivation layer may be used to cover a conductor. Amey only shows a dielectric layer covering the planar layer of a conductor. It should be appreciated that the Shen et al. lacks any suggestion that the reference should be modified in a manner required to meet the claim. In fact the suggested modification would require a substantial reconstruction and redesign of the elements shown in Shen et al. Shen et al. teaches at column 4, lines 1-3, that a surface of conductive layer 60 "forms a gate bonding pad 80 for accepting bond wires to thereby facilitate electrical connection with external circuitry." The formation of a dielectric layer on the surface of the conductive layer 60 of Shen et al. not only would not facilitate electrical connection to external circuitry but could in fact impede such connection. Because the imposition of a dielectric layer could negatively affect the normal operation of the device, it would not have been logical to utilize such material on the conductive layer of Shen et al. Consequently, because the references teach away from each other, they cannot be combined. As such, Raina and Amey either alone or in combination with Shen et al., does not anticipate or render obvious an electrode structure for a display device "a second dielectric layer disposed over said plurality of second electrodes" as is recited in independent Claim 67. Shen et al. and Raina and Amey either alone or in combination, clearly do not show or suggest having a cladding layer disposed over a plurality of first electrodes formed of a metal alloy as in the present claimed invention.

Therefore, Applicants respectfully submit that Shen et al., Raina, and Amey alone or in combination, do not anticipate or render obvious the present claimed invention as recited in independent Claim 67 and that Claim 67 is thus in condition for allowance. Accordingly, Applicants also respectfully submit that Shen et al., alone or in combination with Raina and Amey, do not anticipate or render obvious the present claimed invention as recited in Claim 68 dependent on Claim 67, and that Claim 68 traverses the Examiner's basis for rejection under 35 U.S.C. §103(a) as being dependent on an allowable base claim.

Claims 56-58 and 60 are dependent on independent Claim 54 and recite further features of the present invention.

Shen et al. does not anticipate or render obvious an electrode structure for a display device having "a passivation layer disposed over said plurality of second electrodes" as recited in independent claim 54. Shen et al. only discloses a conductor 60 that overlies insulating layer 70 and forms a gate bonding pad 80 and clearly does not show or suggest an electrode structure that includes a passivation layer disposed over it.

Raina and Amey do not overcome the shortcomings of Shen et al. Raina teaches at column 8, lines 38-40, that a passivation layer 56 which may be formed of silicon nitride may "be formed over gate metal layer 52." Amey only shows a dielectric layer covering the planar layer of a conductor. Shen et al. teaches at column 4, lines 1-3, that a surface of conductive layer 60 "forms a gate bonding pad 80 for accepting bond wires to thereby facilitate electrical connection with external circuitry." It should be appreciated

that the formation of a dielectric or passivation layer on the surface of the conductive layer 60 of Shen et al. not only would not facilitate electrical connection to external circuitry but could in fact impede such connection. Because the imposition of a passivation layer could negatively affect the normal operation of the device, it would not have been logical to utilize such material on the conductive layer of the Shen et al. device. Consequently, because the references teach away from each other, they cannot be combined. As such, Raina et al. and Amey, alone or in combination with Shen et al., does not anticipate or render obvious an electrode structure for a display device "and a passivation layer disposed over said plurality of second electrodes" as is recited in independent Claim 54. Shen et al., Raina and Amey, alone or in combination, clearly do not show or suggest having a passivation layer disposed over a plurality of second electrodes as in the present claimed invention.

Therefore, Applicants respectfully submit that Shen et al., Raina and Amey, alone or in combination, do not anticipate or render obvious the present claimed invention as recited in independent Claim 54 and that Claim 54 is thus in condition for allowance. Accordingly, Applicants also respectfully submit that Shen et al., Raina and Amey, alone or in combination, do not anticipate or render obvious the present claimed invention as recited in Claims 56-58, and 60 dependent on Claim 54, and that Claims 56-58 and 60 traverse the Examiner's basis for rejection under 35 U.S.C. §103(a) as being dependent on an allowable base claim.

Claim 59 is rejected under 35 U.S.C. §103(a) as being unpatentable over Shen et al. (US 5,594,297) in view of Raina (US 6,064,149) and Amey (WO 98/43268) and

further in view of Chakvorty et al. (US 5,894,184). Applicants have reviewed the cited references and respectfully submit that the present invention as recited in Claim 59 is neither anticipated or rendered obvious by Shen et al., alone or in combination with Raina, Amey and Chakvorty et al.

The Examiner is respectfully directed to independent Claim 54 which recites that an embodiment of the present invention is directed to an electrode structure for a display device comprising:

a plurality of first electrodes; a resistor layer disposed over said plurality of first electrodes; a dielectric layer disposed over said resistor layer; a plurality of second electrodes disposed over said dielectric layer; and a passivation layer disposed over said plurality of second electrodes.

Claims 59 is dependent on independent Claim 54 and recite further features of the present invention.

Shen et al. does not anticipate or render obvious an electrode structure for a display device having “a passivation layer disposed over said plurality of second electrodes” as recited in independent Claim 1 as amended. Shen et al. only discloses a conductor 60 that overlies insulating layer 70 and forms a gate bonding pad 80 and clearly does not show or suggest an electrode structure that includes a passivation layer disposed over it.

Raina does not overcome the shortcomings of Shen et al. Raina teaches at column 8, lines 38-40, that a passivation layer 56 which may be formed of silicon nitride may “be formed over gate metal layer 52.” Amey does not overcome the shortcomings of Shen et

al. and Raina. Amey only teaches a dielectric layer covering the planar layer of a conductor. Chakvorty et al. does not overcome the shortcomings of Shen et al. Raina, and Amey. Chakvorty et al. teaches the use of tantalum as a cladding material to prevent "significant interdiffusion of the aluminum and tantalum" at column 8, lines 7-9. Shen et al., Raina, Ammey and Chakvorty et al. either alone or in combination clearly do not show or suggest the utilization of a tantalum structure disposed between a gate structure and a plurality of second electrodes. It should be appreciated that the Shen et al. lacks any suggestion that the reference should be modified in a manner required to meet the claim. In fact the suggested modification would require a substantial reconstruction and redesign of the elements shown in Shen et al. Because the imposition of a tantalum layer between conductors 20 and 60 could negatively affect the normal operation of the device, it would not have been logical to utilize such material on the conductive layer of Shen et al. Consequently, because the references teach away from each other, they cannot be combined. As such, Raina, Amey and Chakvorty et al. either alone or in combination with Shen et al., do not anticipate or render obvious an electrode structure for a display device "a tantalum structure, said tantalum structure disposed between said gate structure and said plurality of second electrodes" as is recited in independent Claim 54. Shen et al., Raina, Amey and Chakvorty et al. either alone or in combination, clearly do not show or suggest having a tantalum layer disposed between a gate structure and a plurality of second electrodes.

Therefore, Applicants respectfully submit that Shen et al. Raina, Amey and Chakvorty et al. alone or in combination, do not anticipate or render obvious the present claimed invention as recited in independent Claim 54 and that Claim 54 is thus in

condition for allowance. Accordingly, Applicants also respectfully submit that Shen et al., alone or in combination with Raina, Amey and Chakvorty et al. do not anticipate or render obvious the present claimed invention as recited in Claims 59 dependent on Claim 54, and that Claim 59 traverses the Examiner's basis for rejection under 35 U.S.C. §103(a) as being dependent on an allowable base claim.

#### SUMMARY

In view of the foregoing amendments and remarks, Applicants respectfully submit that the pending claims are in condition for allowance. Applicants respectfully request reconsideration of the application and allowance of the pending claims.

If the Examiner determines the prompt allowance of these claims could be facilitated by a telephone conference, the examiner is invited to contact Reginald A. Ratliff at (408) 938-9060.

Respectfully submitted,

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MARKED-UP VERSION TO SHOW CHANGES

1. (Amended) An electrode structure for a display device comprising:  
a plurality of first electrodes disposed over a backplate, said plurality of first electrodes further comprising a metal alloy;  
a dielectric layer disposed over said plurality of first electrodes; and  
a plurality of second electrodes, said plurality of second electrodes disposed over said dielectric layer, said plurality of second electrodes further comprising said metal alloy,  
wherein said plurality of first electrodes further comprise a cladding layer disposed over said metal alloy.
68. (Amended) An electrode structure for a display as recited in claim 67 wherein said first dielectric layer comprises a layer of silicon dioxide.
69. (Amended) An electrode structure for a display as recited in claim 68 further comprising:  
f) an evaporated molybdenum layer disposed between a [said] sputtered molybdenum layer and said second dielectric layer.